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EXAMINER	
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)
	10/692,290	RAMO ET AL.
	Examiner	Art Unit
	MICHAEL N. OPSASNICK	2626

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *5/17/2010*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,3-41 and 49-56* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,3-41 and 49-56* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *23 October 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 1,3-42,49-46 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. As per independent claims 1,19,22,27,31,32, the claim recitations pertaining obtaining/segmenting for a plurality of consecutive time intervals, audio signals based upon audio characteristics are vague and indefinite because it is not clear as to which segmenting aspect of applicants disclosure this refers. For example, applicants disclosure presents two segmenting sections, the first being 1) a typical audio encoder that extracts audio signal information (outputting segments based upon voice/unvoiced, silence decision - fig. 4, line 110 into subblock 12, generating segmented audio with associated parameters – line 112; and applicants specification, page 13 lines 8-14); and the second 2) being the re-segmented sequence of initial segments based upon a degree of voicing, etc., derived from speech parameters (fig.4, subblock 20, and applicants spec, page 15, lines 1-17). The current claim scope does not distinguish between these two sections of applicants disclosure and as such, these claims are rejected under 35 U.S.C. 112 second paragraph. For art related examination purposes only, examiner will interpret the claim scope to read upon the first section discussed above, namely,

the encoder section of Fig. 4 that encompasses only line 110, subblock 12, and line 112. The dependent claims do not remedy the deficiencies of the independent claims, and as such, are also rejected under 35 U.S.C. 112, second paragraph.

In view of the new claim amendments, and the 112 rejection above, examiner recommends a variant of the following claim language (to overcome the 112 rejection above, as well as possibly overcoming the prior art used in the current 102 rejections):

"encoding an input audio signal to generate encoded audio parameters, said encoded audio parameters relating to audio characteristics of said input audio signal; inputting to a quantizer, said input audio signal and said encoded audio parameters; the quantizer variably quantizing said input audio signal, wherein the variable quantizing step is determined by said encoded audio parameters."

Examiner also notes the interchangeability, according to applicants specification, of quanitzing and segmenting; therefore as such, examiner reiterates the "recommendation of a variant" of the above proposed claim language.

Claim Rejections - 35 USC § 102

3. Claims 1, 3-14, 19-21,26-37, 39-44,46-56 are rejected under 35 U.S.C. 102 (b) as being anticipated by Gersho et al. (6,311,154).

As to claim 1, Gersho et al. teach segmenting {partitioning or classifying} the audio signal {speech} into a plurality of segments {frames} (partitioning samples of a speech signal

into frames, col. 4, lines 25-27) obtaining, for each of a plurality of consecutive time intervals, one or more parameters from an audio signal, said one or more parameters relating to audio characteristics {classes} of the audio signal (classifying the speech signal in each from into one of a plurality of classes, col. 4, lines 25-27); and encoding the segments {frames} with different encoding settings {excitation} (encoding an excitation for the frame using one of a plurality of excitation coding...selected according to the class of the frame, col. 4, lines 30-33).

As to claim 3, Gersho et al. teach characteristics {classes/classifying} include voicing characteristics {voice} in said segments {frames} of the audio signal { speech signal} (classifying the speech signal in each frame into classes, classes include voice frame, col. 4, lines 25-27 & 35).

As to claim 4, Gersho et al. teach characteristics {identifying} include energy characteristics {presence of energy} in said segments {window} of the audio signal {residual signal } (identifying the location of a window, identifying considers the presence of energy in the residual signal, col. 4, lines 65-67).

As to claim 5, Gersho et al. teaches characteristics {positioning} include pitch characteristics {function of the pitch} in said segments {frames} of the audio signal (positioning the window at a location that is a function of a pitch of the frame, col. 4, lines 59-61).

As to claim 6, Gersho et al. teach segmenting {partitioning} is carried out concurrently {classifying and encoding} to said encoding {coding} (partitioning samples of speech, classifying speech signals into classes, coding a speech signal, col. 4, lines 24-25. The

classifying and encoding process may be done concurrently).

As to claim 7, Gersho et al. teach segmenting is carried out before said encoding (partitioning samples of speech, classifying speech signals into classes, coding a speech signal, col. 4, lines 24-25, thus the classifying or segmenting is done before coding).

As to claim 8, Gersho et al. teach plurality of voicing values {voice or unvoiced} are assigned to the voicing characteristics of the audio signal in said segments, and wherein said Segmenting {partitioning} is carried out based on the assigned voicing values (classifying a frame is being one of an unvoiced or voiced, col. 4, lines 52-53).

As to claim 9, Gersho et al. teach a value designated {classifying} to a voiced speech signal and another value designated to an unvoiced signal (classifying a frame is being one of an unvoiced or voiced, col. 4, lines 51-52).

As to claim 10 Gersho et al. teach a value designated {classifier} to a transitional stage between the voice and unvoiced {transitional} signals {frame} (classifier for classifying a transition frame, col. 4, lines 52-55)

As to claim 11, Gersho et al. teach a value designated {(m)=l } to an inactive period {silent frame} in the audio signal {speech} (If (m)=l, then the current frame is declared a silent

frame, col. 15, lines 7-8 & 35-37).

As to claim 12, Gersho et al. teach selecting a quantization mode for said encoding in order to improve the bit allocation and to reduce the parameter update rate, wherein the segmenting is carried out based on the selected quantization mode (col. 3 lines 45-49; Fig. 5 and col. 11 lines 4-16; col. 4, lines 36-37, col. 15, lines 35-36 & col. 9, lines 63-65).

As to claim 13, Gersho et al. teach segmenting is carried out based on target accuracy in reconstruction of the audio signal, wherein the target accuracy is selected based on distortion criteria comparing up-sampled quantized values (transmitted samples) and modified parameters (col. 9, lines 63-65 and col. 3 lines 45-49).

As to claim 14, Gersho et al. teach segmenting is carried out for providing a linear pitch representation in at least some of said segments (col. 9, lines 63-65; col. 3 lines 45-49 and col. 4 lines 50-62).

As to claim 19 and 27, Gersho et al. (154) teach an input for receiving audio data indicative of the parameters in the adjusted representation (input applied to element 14, Fig. 3). and a module responsive to the audio data for generating the audio signal based on the adjusted signals and the characteristics of the audio signal (Fig. 3. One would necessarily need a module to respond to an adjusted audio signal/characteristics of audio signals).

At the time of the invention, it would have been inherent to one of ordinary skill in to use a decoder in order to reverse the encoding data for further processing, such as modulating or storing the audio signal.

As to claim 20 and 28, Gersho et al. (154) teaches recording parameters (col. 29 lines 25-35);

As to claim 21 and 29, Gersho et al. (154) teach.
the audio data is transmitted through a communication channel and wherein the input of the decoder is operatively connected to the communication channel for receiving the audio data (digital communications, col. 1, line 1 and Fig. 3).

As to claim 26, Gersho et al. (154) teach, a code for determining the characteristics of the audio signal (LP coding, col. 8 lines 54- a code for adjustment the parameter based on the characteristics of the audio signal for providing an adjusted representation of the parameter, wherein said adjusting comprises the steps of segmenting the audio signal into a plurality of segments based on the characteristics of the audio signal and encoding the segments based on one or more of a plurality of encoding settings (LP coding, modified residual, adjusts frames, Abstract and Fig. 9; col. 8 lines 54-63).

As to claim 30, Gersho et al. (154) teaches a mobile terminal (mobile base station, col. 6, lines 17-18).

As to claim 31, Gersho et al. (154) teaches implementing in a cell phone system which necessarily has both base station and mobile station adapted to communicating with the base stations (col. 6, lines 33-36); a decoder for use in parametric audio coding for generating a synthesized audio signal indicative of an audio signal having audio characteristics, wherein the audio signal is coded in a coding step into a plurality of parameters at a data rate and the encoding step is adjusted based on the characteristics of the audio signal for providing an adjusted representation of the parameters, wherein the said adjusting comprises the steps of segmenting the audio signal into a plurality of segments based on the characteristics of the audio signal and encoding the segments based on one or more of a plurality of encoding settings (Figs 1, 4-5, LP coding, modified residual, adjusts frames, Abstract and Fig. 9; col. 8 lines 54-63).. an input for receiving audio data indicative of the parameters in the adjusted representation from at least one of the base stations for providing the audio data to the decoder, so as to allow the decoder to generate the synthesized audio signal based on the adjusted representation (Figs 1, 4-5, col. 3 lines 1-15).

As to claim 32, Gersho et al. (154) teach, an input for receiving audio data indicative of end points defining a plurality of sub-segments, wherein the audio signal is encoded for providing parameters indicative of the audio signal, the parameters including pitch contour data containing a plurality of pitch values representative of an audio segment in time, and wherein the pitch contour data in the audio segment in time is approximated by a plurality of consecutive sub-segments in the audio segment, and wherein the end points include a first end point and a

second en d point for defining each of said sub-segments (decoder, col. 6 lines 8-11 and Fig. 1); and a reconstruction module for reconstructing the audio segment based on the received audio data (Fig. 9; col. 6 lines 8-11).

As to claim 33, Gersho et al. (154) teach encoding settings inherently include bit allocation (col. 3 lines 45-49), quantization accuracy (Fig. 5 and col. 11 lines 4-16), quantization method (col. 11 lines 4-16) and parameter update rate (col. 3 lines 31-44 and 56-60).

As to claim 34, Gersho et al. (154) teach, the audio signal contains sinusoidal components (col. 3 lines 25-29, analysis windows made equal becomes sine) and said parameters include frequency values (Fig. 1 element 68), amplitude values (col. 3 lines 51-55) and phase values indicative of the sinusoidal components (Fig. 1 element 76 and col. 3 lines 25-29).

As to claim 35, Gersho et al. (154) teach the parameters includes pitch (col. 4 line 60), voicing f(Fig. 9 element 42c), amplitude (col. 3 lines 51-55) and energy of the audio signal (col. 3 lines 42-44).

As to claim 36, Gersho et al. (154) teach the parameters include pitch contour data (col. 4 line 60-61) containing a plurality of pitch values inherently representative of an audio segment in time (col. 4 lines 59-63 and col. 2 lines 51-64).

As to claim 37, Gersho et al. (154) teach encoding settings inherently include bit allocation (col. 3 lines 45-49), quantization accuracy (Fig. 5 and col. 11 lines 4-16), quantization method (col. 11 lines 4-16) and parameter update rate (col. 3 lines 31-44 and 56-60, Fig. 4, 8-9 and 14).

As to claim 40, Gersho et al. (154)teach encoding settings inherently include bit allocation (col. 3 lines 45-49), quantization accuracy (Fig. 5 and col. 11 lines 4-16), quantization method (col. 11 lines 4-16) and parameter update rate (col. 3 lines 31-44 and 56-60, col. 6 lines 8-11).

As to claim 41, Gersho et al. (154)teach, wherein the audio signal comprises a plurality of frames and the audio signal in each frame has a waveform and wherein the further audio signal is produced in the decoding stage independently of the waveform (col. 14 lines 8-14; col. 13 lines 62-67 and col. 14 lines 1-7).

As to claim 42, which depends on claim 1, Gersho et al. (154) teach
wherein each segment has a segment length and wherein the segment length of at least one segment is different from the segment length of at least one other segment (col. 14 lines 8-14; col. 13 lines 62-67 and col. 14 lines 1-7).

As to claim 43, which depends on claim 19, Gersho et al. (154) teach wherein the audio signal comprises a plurality of frames and the audio signal in each frame has a waveform and

wherein the module generates the further audio signal independently of the waveform (col. 14 lines 8-14, col. 13 lines 62-67 and col. 14 lines 1-7).

.14).

As to claim 44, which depends on claim 19, Gersho et al. (154) teach wherein the segments comprise segments of different segment lengths (col. 14 lines 8-14).

As to claim 46, which depends on claim 26, Gersho et al. (154) teach wherein the segments comprise segments of different segment lengths (col. 14 lines 8-14).

As to claim 47, which depends on claim 31, Gersho et al. (154) teach wherein the segments comprise segments of different segment lengths (col. 14 lines 8-14).

As to claim 48, which depends on claim 32, Gersho et al. (154) teach wherein the segments comprise segments of different segment lengths (col. 14 lines 8-14).

As per claims 49-56, Gersho et al. (154) teaches regular and consecutive time intervals (Fig. 2, Fig. 6).

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. Claims 15-18,22-25,38,45 are rejected under 35 U.S.C. 102(e) as being anticipated by Sinha et al (7191136).

As per claims 15,22,23,45, Sinha et al (7191136) teaches a method for use in a parametric audio coding to encode an audio signal by segmenting the audio signal for each of a plurality of consecutive time intervals, one or more parameters from an audio signal, said one or more parameters relating to audio characteristics of the audio based on audio characteristics of the audio signal (by high pass filtering the input audio signal (col. 4 lines 47-51), and then performing a non-linear parametric representation of the signal – col. 4 lines 53-59; wherein the data amount per processing depends upon the frequency characteristics of the audio signal, and the characteristics analyzed can be peak analysis, lattice quantization, or frequency range selection – col. 3 lines 1-6); encoding the segments with different encoding settings (by choosing compression settings on-the-fly → col. 6 lines 43-47); also teaching upsampling (col. 7 lines 42-44) or downsampling (col. 7 lines 39-46).

As per claims 16-18,38, Sinha et al (7191136) teaches quantized and unquantized features (col. 3 lines 1-6)

As per claim 24, Sinha et al (7191136) teaches storage mediums (col. 8 lines 1-9).

As per claim 25, Sinha et al (7191136) teaches header information transmitted over communication channels (col. 6 line 64 – col. 7 line 7).

Response to Arguments

6. Applicant's arguments filed 5/20/2010 have been fully considered but are unpersuasive. Examiner notes that previous arguments against the broad claim scope of the independent claims still applies; examiner has recommended claim language which would overcome the 112 rejections and possibly overcome the Gersho and Sinha references. Furthermore, examiner reiterates the arguments presented in the previous office action:

As per the arguments against the Gersho reference, examiner argues that the current claim scope still reads upon the Gersho reference, as detailed in the 35 U.S.C. 112 reference above. The claim scope has been interpreted according to the comments listed above under the 35 U.S.C. 112 rejection, and under that interpretation, the Gersho reference still applies. As per applicants arguments against the 112 rejection, examiner disagrees and argues that the reference to page 15 of the specification shows a typical speech coder that the estimation of speech parameters at regular intervals reads on the broad claim scope pertaining to segmentation. Clearly, based upon this interpretation of the broad claim scope, the Gersho reference still applies to the claims. Furthermore, examiner recommends that applicants also revisit the references cited in the previous office action that could apply to applicants interpretation of the claim scope (that section is provided as follows:

> The amendment filed 12/3/07 has canceled the structural relationships that would have defined applicants disclosed invention, namely, the combination of subblocks 12, 20, and signal flowpath 110 and 112. However, the broad current claim scope still reads upon Fig. 4, subblock 12, and the disclosed encoder/extraction process detailed in applicants specification with respect to this aspect of applicants disclosure. Furthermore, examiner notes that the process in applicant's disclosure depends upon an initial partitioning of the audio signal – the parameters that are extracted from subblock contain not only voicing/energy/spectral characteristics, but timing information as well, such timing information used in subblock 20 to determine the final sectioning of the audio signal. If this timing-partitioning information was not available to subblock 20, then the

decision making process of subblock 20 would be ineffective. Lastly, examiner wishes to point to applicant the following prior art – Teguchi (4701955), teaching variable frame length vocoder – determining the frame length based on spectral parameters of the audio signal (col. 4 lines 29-60; col. 3 lines 40-60); and Manjunath (6434519), Fig.5, performing energy parameter analysis on received samples, and performing different encoding methods based on different encoding rates (different encoding rate with different size frames); Stachurski et al (7039581) applying different mode encoding based upon extracted parameters (these references can be applied to different aspects of applicants disclosure).

As per the arguments against the Sinha reference, examiner disagrees and argues that the segmentation (data set size) is directly dependent upon the frequency characteristics of the signal, and as such, still reads on the current broad claim scope.

On page 10 of the response, applicant equates partitioning to segmenting, yet, on page 12 of the response, applicant argues that since the claims now state "partitioning", that this implies this occurs after the parameters are obtained; examiner disagrees and points to the arguments presented in the 35 USC 112 rejection above and examiner, again, reiterates the proposed claim language in the same paragraph as noted above, to overcome 1) not only the 112 rejection; additionally 2) possibly the prior art rejections, and now, 3) the applicants representatives' interpretation. As to applicants arguments against Gersho not addressing the decoding aspect, examiner disagrees and points to Gersho teaching such (e.g., Fig. 14,1,4; and accompanying text). As to the arguments against the Sinha reference, examiner disagrees and argues that Sinha teaches the interpretation of the claim language as detailed in the 35 USC 112 rejection paragraph above; Sinha meets the claim limitations by teaching the data amount per processing depends upon the frequency characteristics of the audio signal, and the characteristics analyzed can be peak analysis, lattice quantization, or frequency range selection – col. 3 lines 1-6); encoding the segments with different encoding settings (by choosing compression settings on-the-fly → col. 6 lines 43-47).

Conclusion

7. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael Opsasnick, telephone number (571)272-7623, who is available Tuesday-Thursday, 9am-4pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mr. Richemond Dorvil, can be reached at (571)272-7602. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Michael N. Opsasnick/
Primary Examiner, Art Unit 2626
7/26/10